

## CLAIMS

1. An inverter device comprising:  
an inverter circuit including  
a bridge circuit connected between a positive  
5 electrode and a negative electrode of a direct current  
power supply, the bridge circuit including an upper arm  
unit and a lower arm unit connected in series, wherein  
the upper arm unit includes a upper arm switching  
element and a diode connected back-to-back to each other,  
10 and  
the lower arm unit includes a lower arm switching  
element and a diode connected back-to-back to each other;  
an inverter driving unit including a high compression  
IC that drives the upper arm switching element and the  
15 lower arm switching element; and  
a clamp unit that clamps a difference in potential  
between a lower-arm driving reference supply terminal of  
the high compression IC and an upper arm driving high-  
pressure side power supply terminal of the high compression  
20 IC.
2. The inverter device according to claim 1, wherein the  
inverter circuit is a single-phase inverter circuit.
- 25 3. The inverter device according to claim 2, wherein the  
clamp unit is a clamp diode.
4. The inverter device according to claim 3, wherein a  
current rating required for the clamp diode is smaller than  
30 a current rating required for the diode connected back-to-  
back with the lower arm switching element.
5. The inverter device according to claim 3, wherein the

clamp diode is attached on outside of the high compression IC.

6. The inverter device according to claim 1, wherein the  
5 inverter circuit is a three-phase inverter circuit.

7. The inverter device according to claim 6, wherein the clamp unit is a plurality of clamp diodes provided for each phase of the three-phase inverter circuit.

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8. The inverter device according to claim 7, wherein each of the clamp diodes is connected between the lower-arm driving reference supply terminal of the high compression IC and the upper arm driving high-pressure side power  
15 supply terminal of the high compression IC.

9. The inverter device according to claim 7, wherein the clamp diodes include

a first clamp diode connected between the lower-arm  
20 driving reference supply terminal of the high compression IC and a lower arm driving high-pressure side power supply terminal of the high compression IC, and

a plurality of second clamp diodes each connected between the lower arm driving high-pressure side power  
25 supply terminal of the high compression IC and the upper arm driving high-pressure side power supply terminal of the high compression IC.